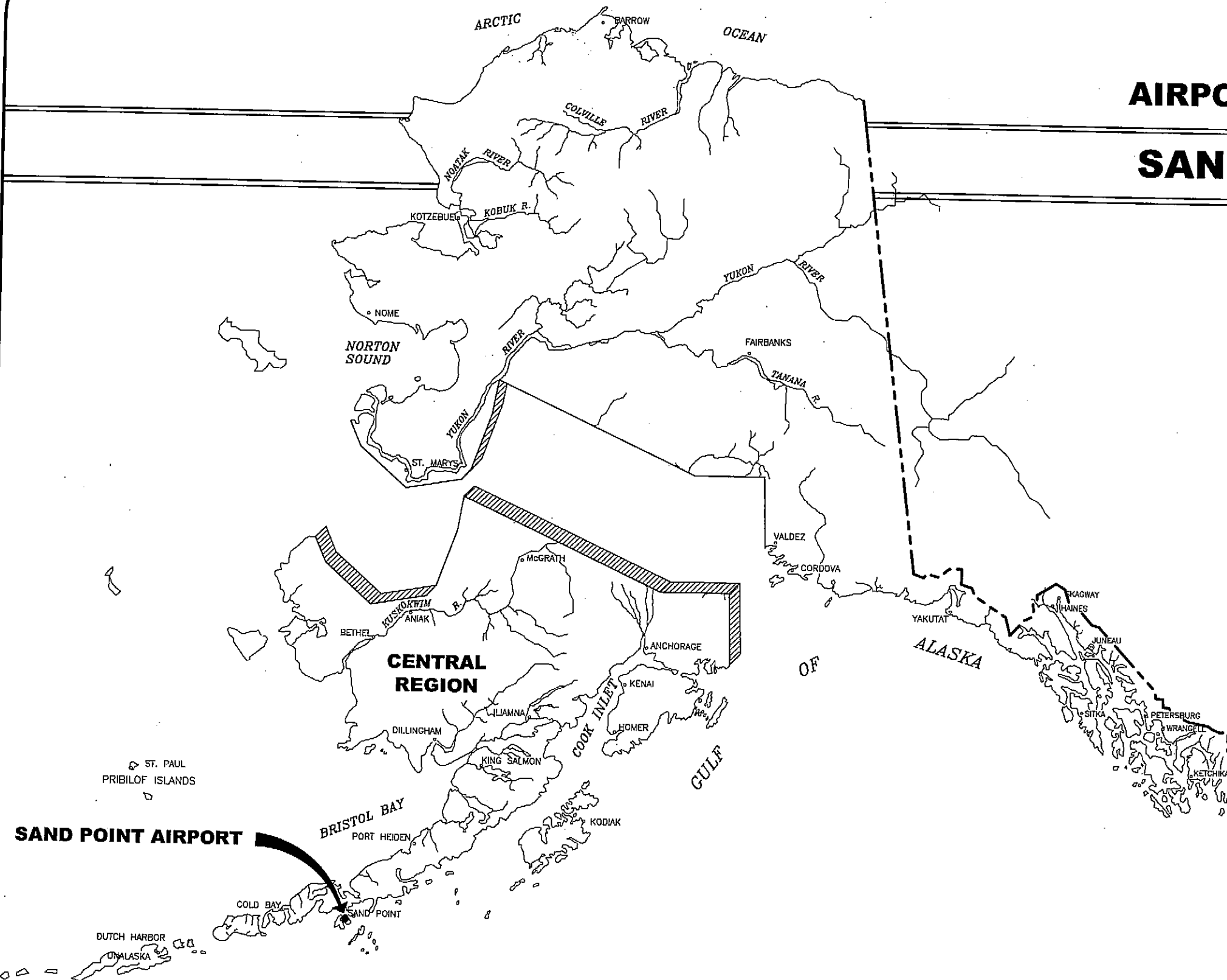
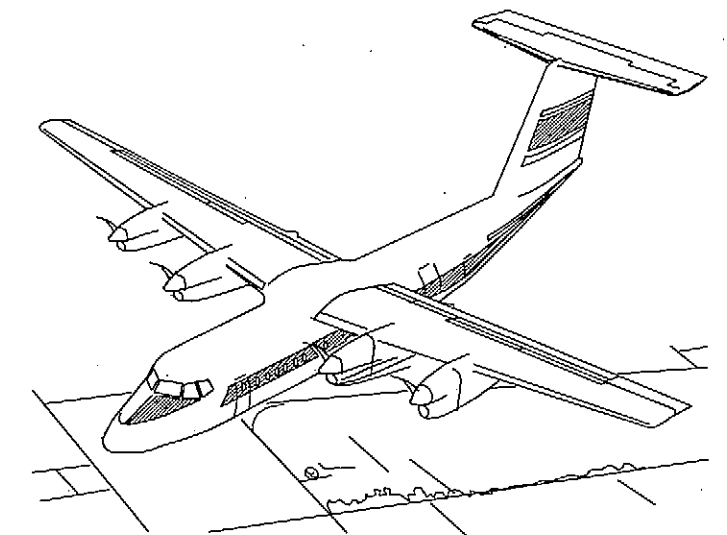


AIRPORT LAYOUT PLAN FOR SAND POINT AIRPORT

2002

DRAWING INDEX

- 1 - COVER SHEET AND INDEX
- 2 - VICINITY MAP AND DATA TABLES
- 3 - EXISTING AIRPORT PLAN AND RUNWAY PROFILE
- 4 - FUTURE AIRPORT PLAN AND RUNWAY PROFILE
- 5 - INNER PORTION OF THE APPROACH SURFACE DRAWING
- 6 - AIRPORT AIRSPACE DRAWING
- 7 - TERMINAL AREA PLAN
- 8 - PROPERTY PLAN
- 9 - NARRATIVE REPORT
- 10 - NARRATIVE REPORT



**SPONSORED BY
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION**

CONCUR *Gordon C. Keith* **DATE** 9/13/02
GORDON C. KEITH, P.E. DIRECTOR OF CONSTRUCTION AND OPERATIONS

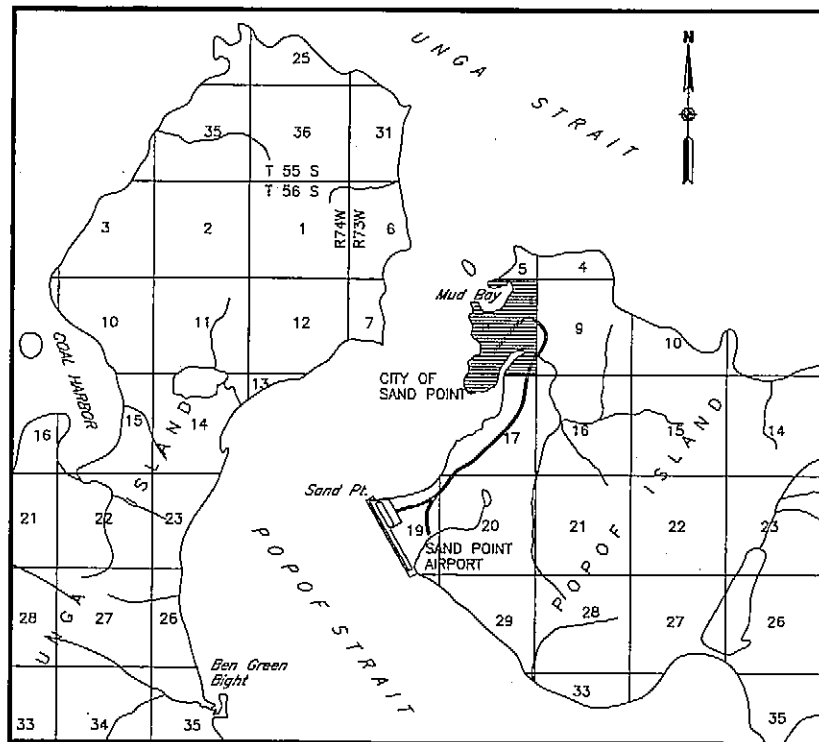
APPROVED *Steven R. Horn* **DATE** 9/13/02
STEVEN R. HORN, P.E. REGIONAL PRECONSTRUCTION ENGINEER

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL
SUBJECT TO ALP APPROVAL LETTER DATED 10/7/02
By: *J. P. [Signature]* Date: 10/7/02
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-001

FAA AIRSPACE REVIEW NUMBER
01-AAL-130-NRA

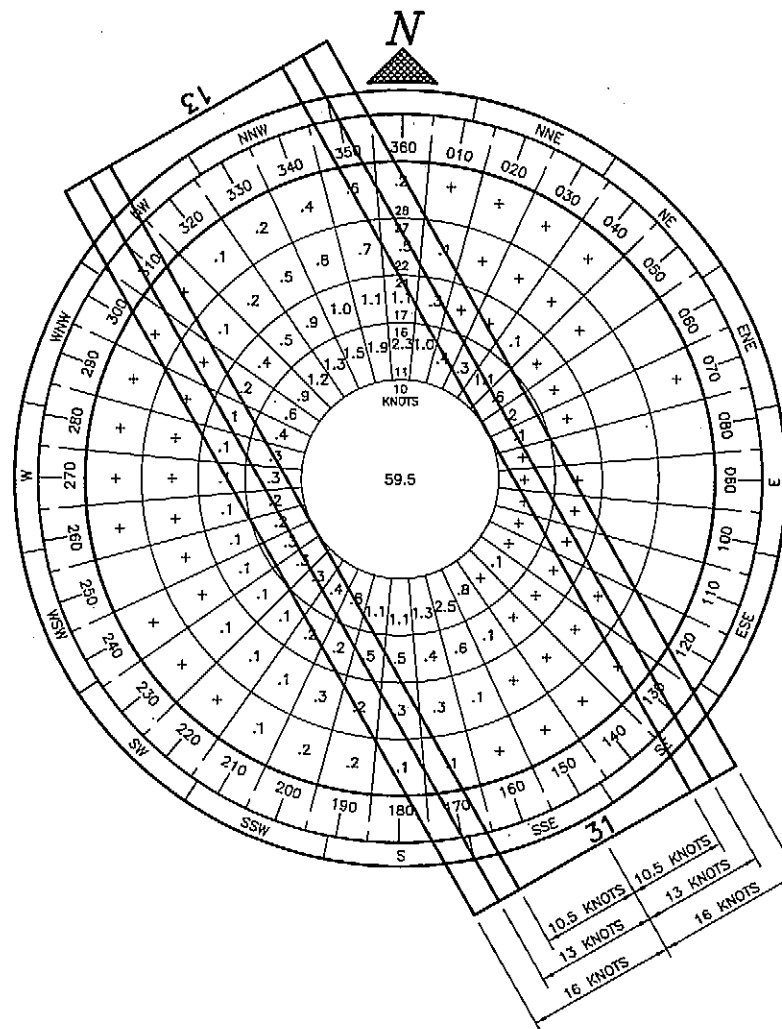
**SAND POINT
AIRPORT LAYOUT PLAN
COVER SHEET AND INDEX**

SHEET 1 OF 10



VICINITY MAP

1"=1 MILE
T 58 S, R 73 W, SEC. 8
SEWARD MERIDIAN
USGS PORT MOLLER (6-2), ALASKA 1963



WIND DATA

CROSSWIND COMPONENT	WIND COVERAGE
10.5 KNOTS	89.4%
13 KNOTS	94.2%
16 KNOTS	97.6%

SOURCE: SAND POINT AWOS

PERIOD: JANUARY 1, 1992 THRU DECEMBER 31, 1999
(107,560 OBSERVATIONS)

FUTURE DECLARED DISTANCES

ITEM	DISTANCE
RUNWAY 13-31 LDA	4099'
RUNWAY 13 ASDA	4639'
RUNWAY 31 ASDA	4674'
RUNWAY 13-31 TORA/TODA	5214'

NON-STANDARD CONDITIONS

ITEM	EXISTING	STANDARD	FUTURE
RUNWAY SAFETY AREA LENGTH BEYOND RUNWAY END	300'	600'	600'
PART 77 TRANSITIONAL SURFACE	4:1	7:1	7:1
RUNWAY WIDTH	150'	100'	150'
RUNWAY VERTICAL CURVE STA. 18+20	N/A	480'	200'

DATA TABLES

RUNWAY DATA

RUNWAY 13-31			
ITEM		EXISTING	FUTURE
RUNWAY SURFACE		ASPHALT	ASPHALT
PAVEMENT STRENGTH	SINGLE WHEEL (S)	kg	34,020
		(lb.)	75,000
	DUAL WHEEL (D)	kg	90,720
		(lb.)	200,000
	DUAL TANDEM (DT)	kg	136,080
		(lb.)	300,000
EFFECTIVE GRADE		0.18%	0.18%
% WIND COVERAGE (16 KNOTS)		97.6%	97.6%
APPROACH SURFACES / VISIBILITY MINIMUMS		34:1 / 1 MILE	34:1 / 1 MILE
DECLARED DISTANCES		N/A	SEE TABLE
RUNWAY LIGHTING		M.I.R.L.	M.I.R.L.
RUNWAY MARKING		N.P.I.	N.P.I.
VISUAL APPROACH AIDS		VASI/REILS	PAPI/REILS
RUNWAY DIMENSION		150' x 4000'	150' x 5214'
RUNWAY SAFETY AREA (RSA)			
- WIDTH		290'	300'
- LENGTH BEYOND RUNWAY END		300'	600'
RUNWAY OBJECT FREE AREA (ROFA)			
- WIDTH		800'	800'
- LENGTH BEYOND RUNWAY END		600'	600'
RUNWAY OBSTACLE FREE ZONE (ROFZ)			
- WIDTH		400'	400'
- LENGTH BEYOND RUNWAY END		200'	200'
GEODETC POSITIONS (N.A.D. 83)			
THRESHOLD 13	LAT.	55°19'09.7" N	55°19'07.0" N
	LONG.	160°31'37.9" W	160°31'34.5" W
THRESHOLD 31	LAT.	55°18'35.6" N	55°18'32.1" N
	LONG.	160°31'03.1" W	160°30'58.9" W
RUNWAY END 13	LAT.	55°19'09.7" N	55°19'11.6" N
	LONG.	160°31'37.9" W	160°31'39.2" W
RUNWAY END 31	LAT.	55°18'35.6" N	55°18'27.2" N
	LONG.	160°31'03.1" W	160°30'53.9" W

AIRPORT DATA

ITEM	EXISTING	FUTURE
AIRPORT ELEVATION (M.S.L.)	21'	21'
AIRPORT REFERENCE POINT (A.R.P.)	LAT.	55°18'49.7" N
	LONG.	160°31'17.5" W
MEAN MAX. TEMPERATURE, HOTTEST MONTH (AUGUST)		
AIRPORT AND TERMINAL NAVIGATION AIDS		
AIRPORT REFERENCE CODE (ARC)		
AIRPORT LIGHTING		
TAXIWAY LIGHTING		
MAGNETIC DECLINATION, 2002		

LEGEND

ITEM	EXISTING	FUTURE
AIRPORT REFERENCE POINT (A.R.P.)		
ANTENNA		
SATELLITE ANTENNA		
AVIGATION & HAZARD EASEMENT		
AWOS		
BLUFF		
BUILDINGS		
BUILDING RESTRICTION LINE		
CONTOURS		
FENCING		
LEASE LOT LINES		
MONUMENT		
PROPERTY LINE		
RED		
ROADWAYS		
ROTATING BEACON		
SECURITY GATE		
SHORELINE		
THRESHOLD LIGHTS		
VASI		
WIND CONE		
SEGMENTED CIRCLE		

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL

By: *[Signature]*
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-001

DATE: 10/7/02

FAA AIRSPACE REVIEW NUMBER: 01-AAL-130-NRA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

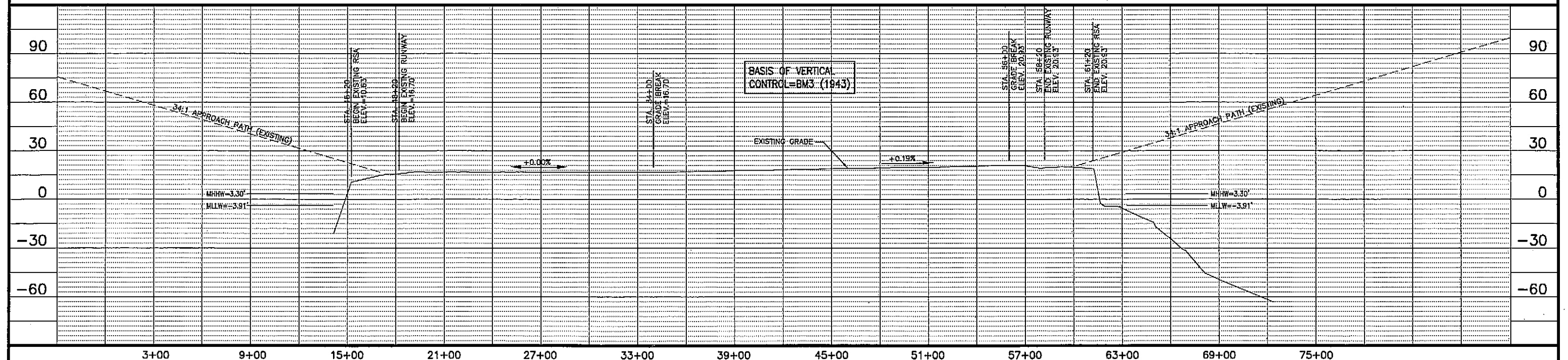
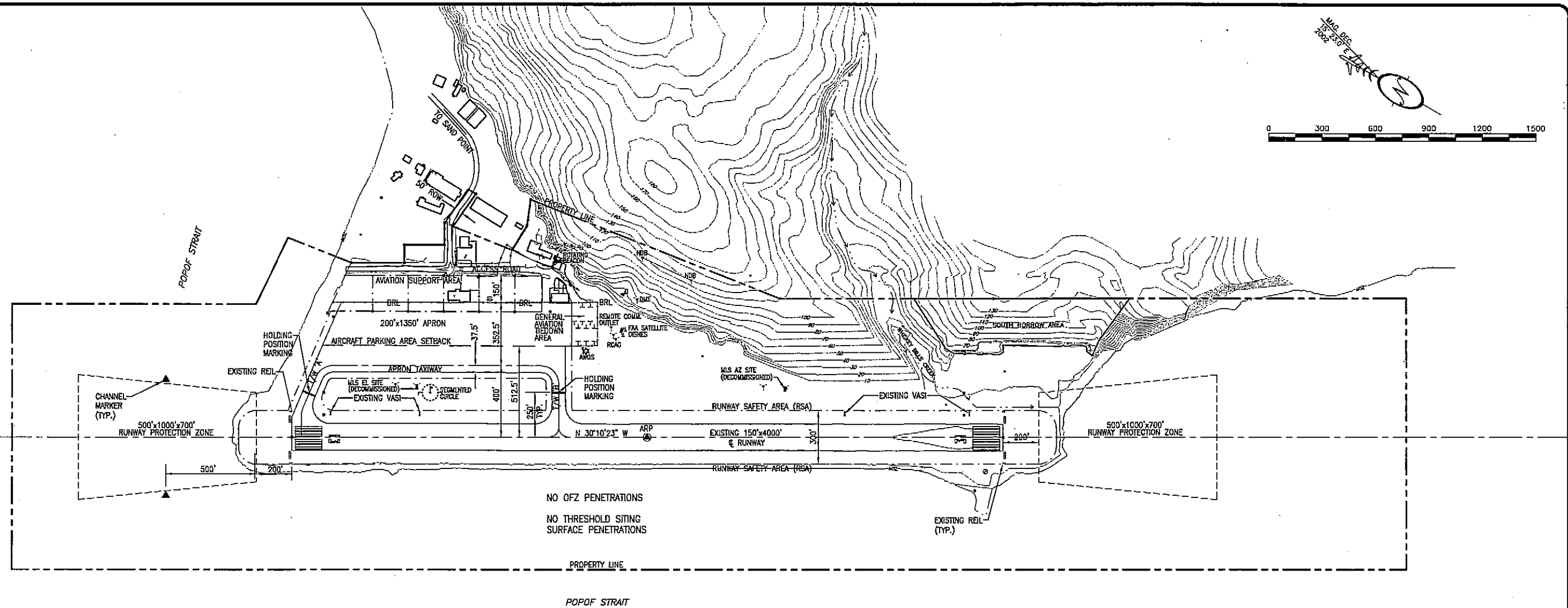
APPROVED: *[Signature]*
STEPHEN M. RYAN, P.E.
APPROVED: *[Signature]*
JOHN G. WAHL, P.E.

DESIGN SECTION CHIEF
PROJECT MANAGER

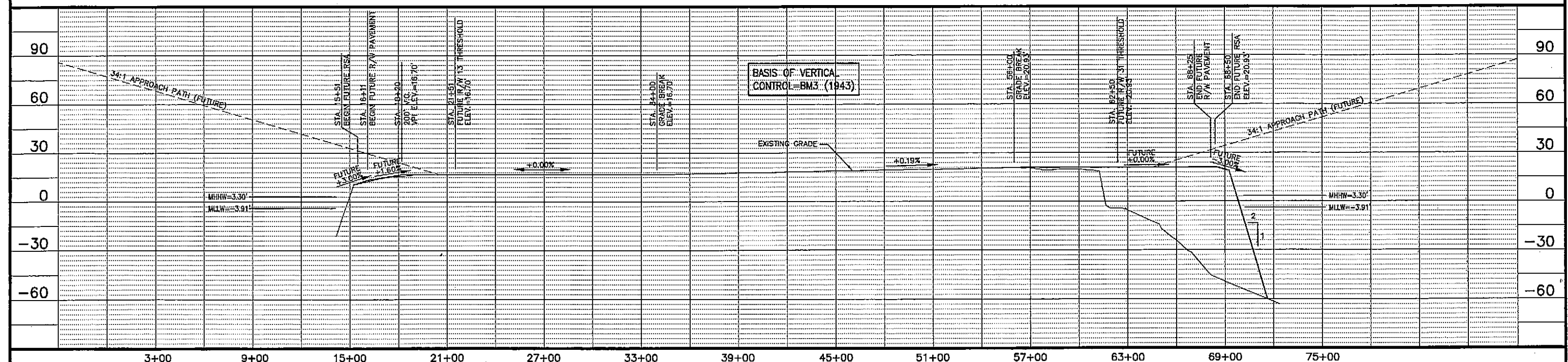
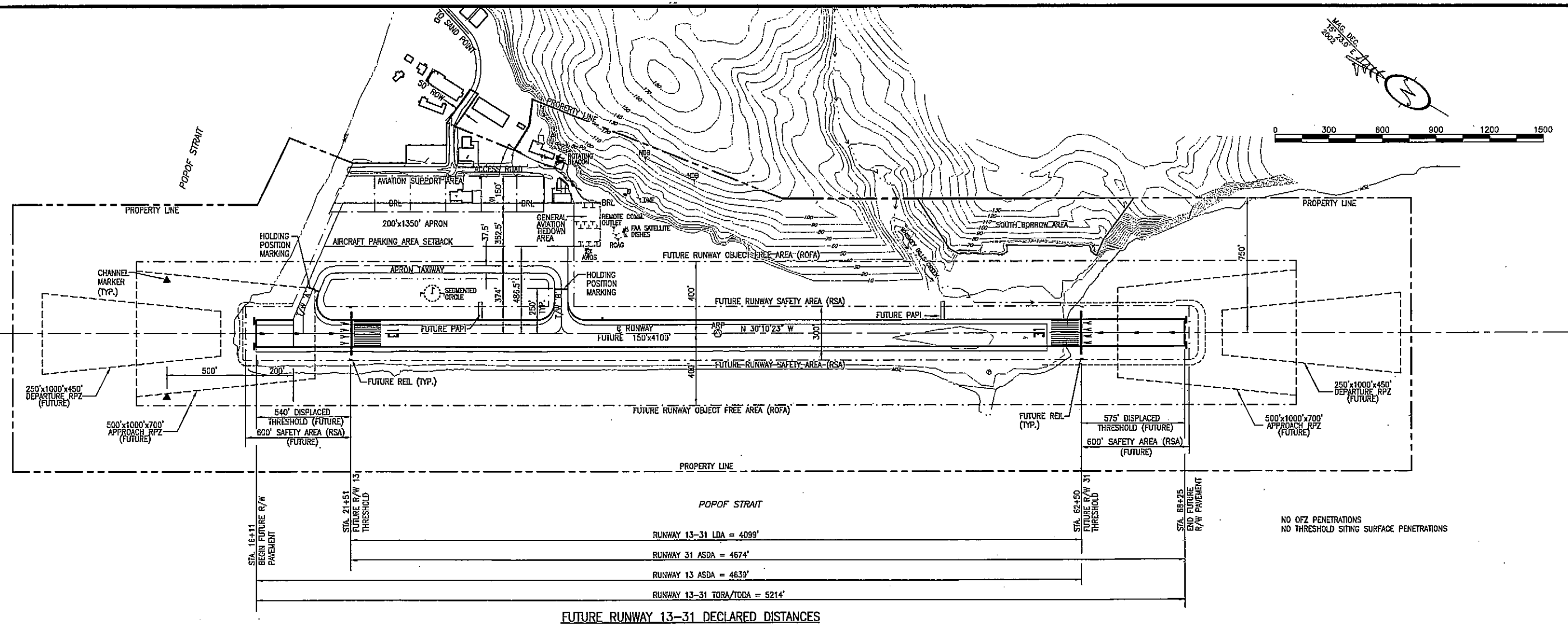
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DESIGN JGL
DRAWN SMT
CHECKED ZWS

SAND POINT
AIRPORT LAYOUT PLAN
VICINITY MAP AND DATA TABLES

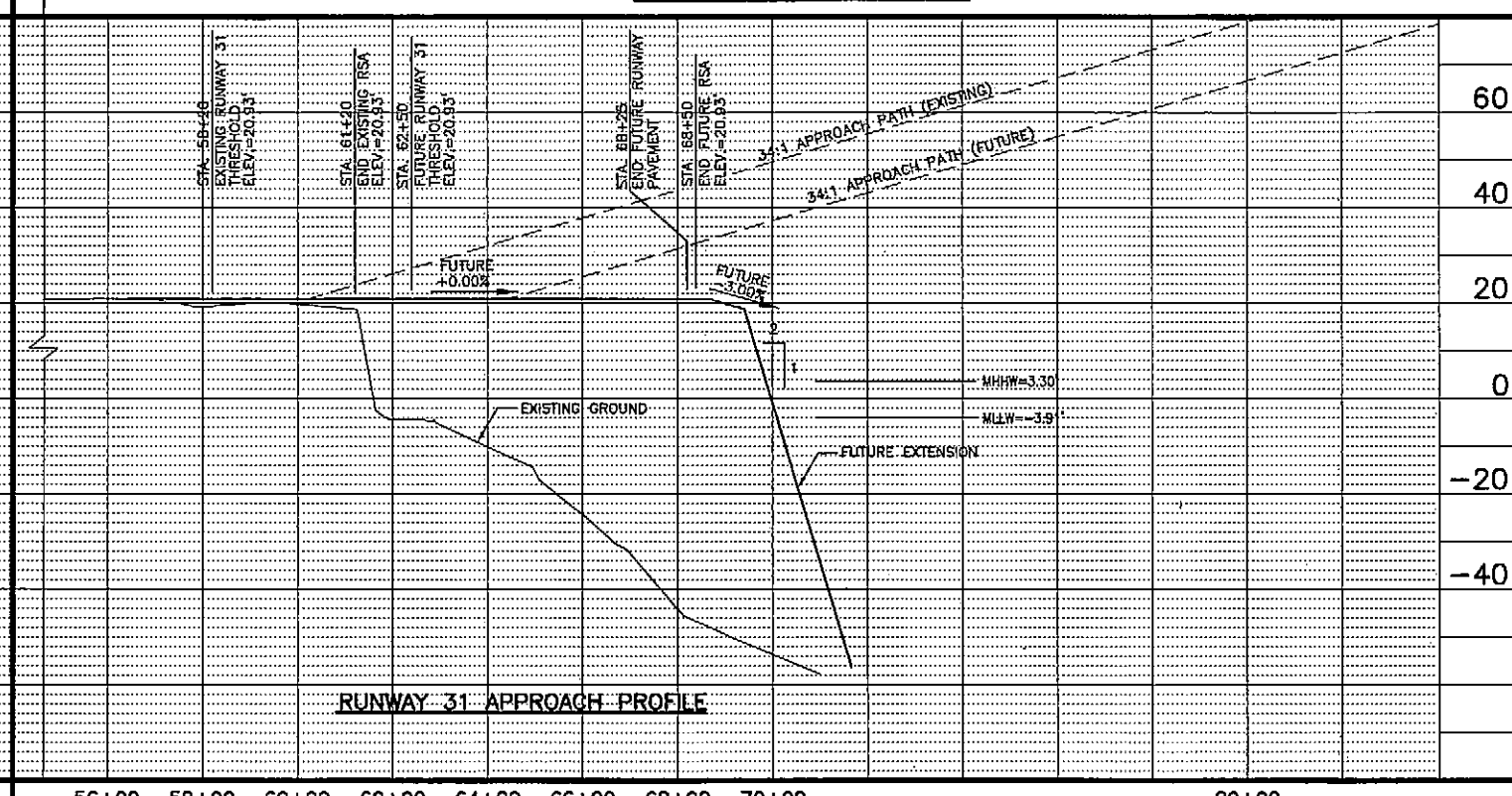
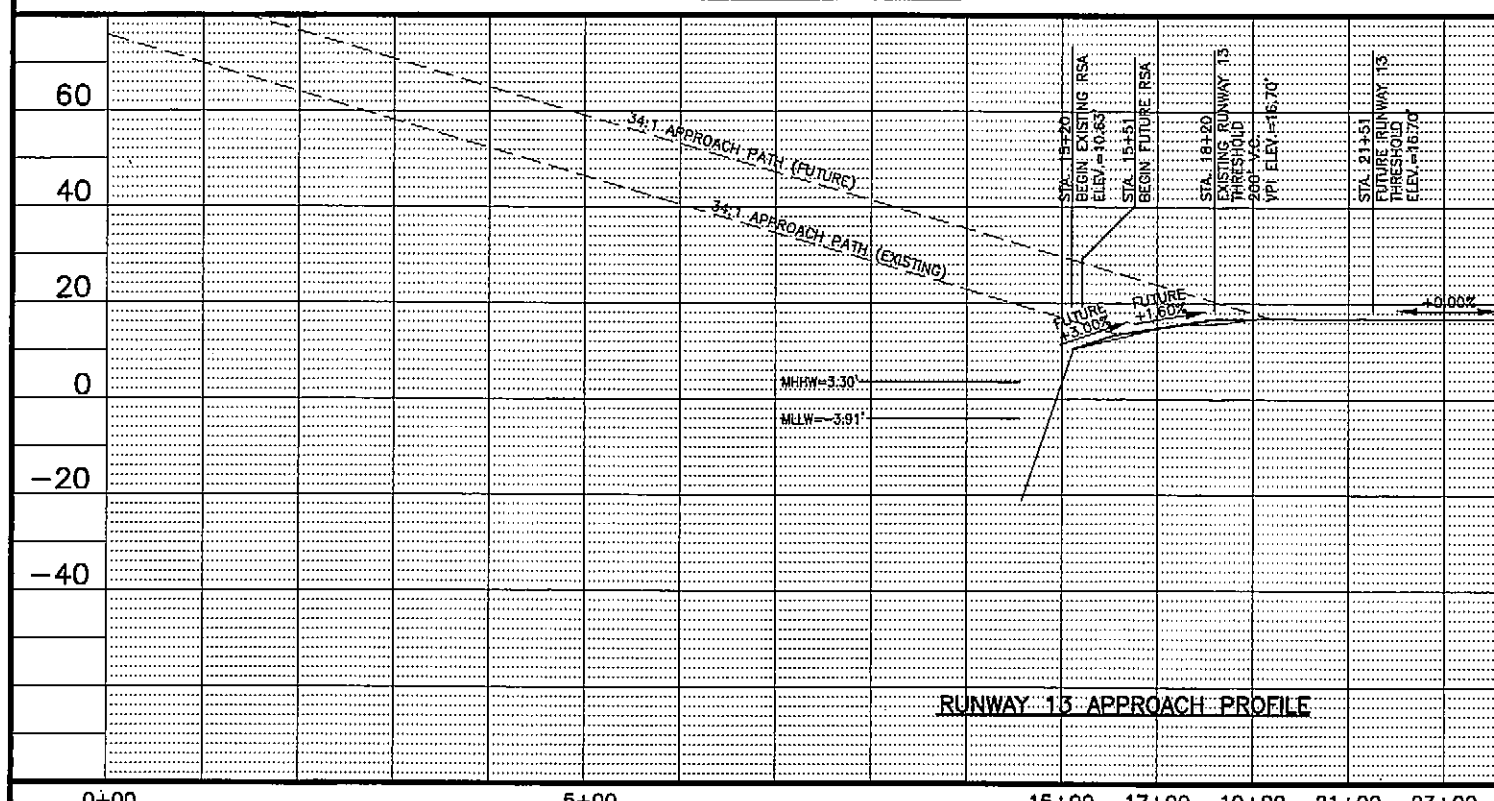
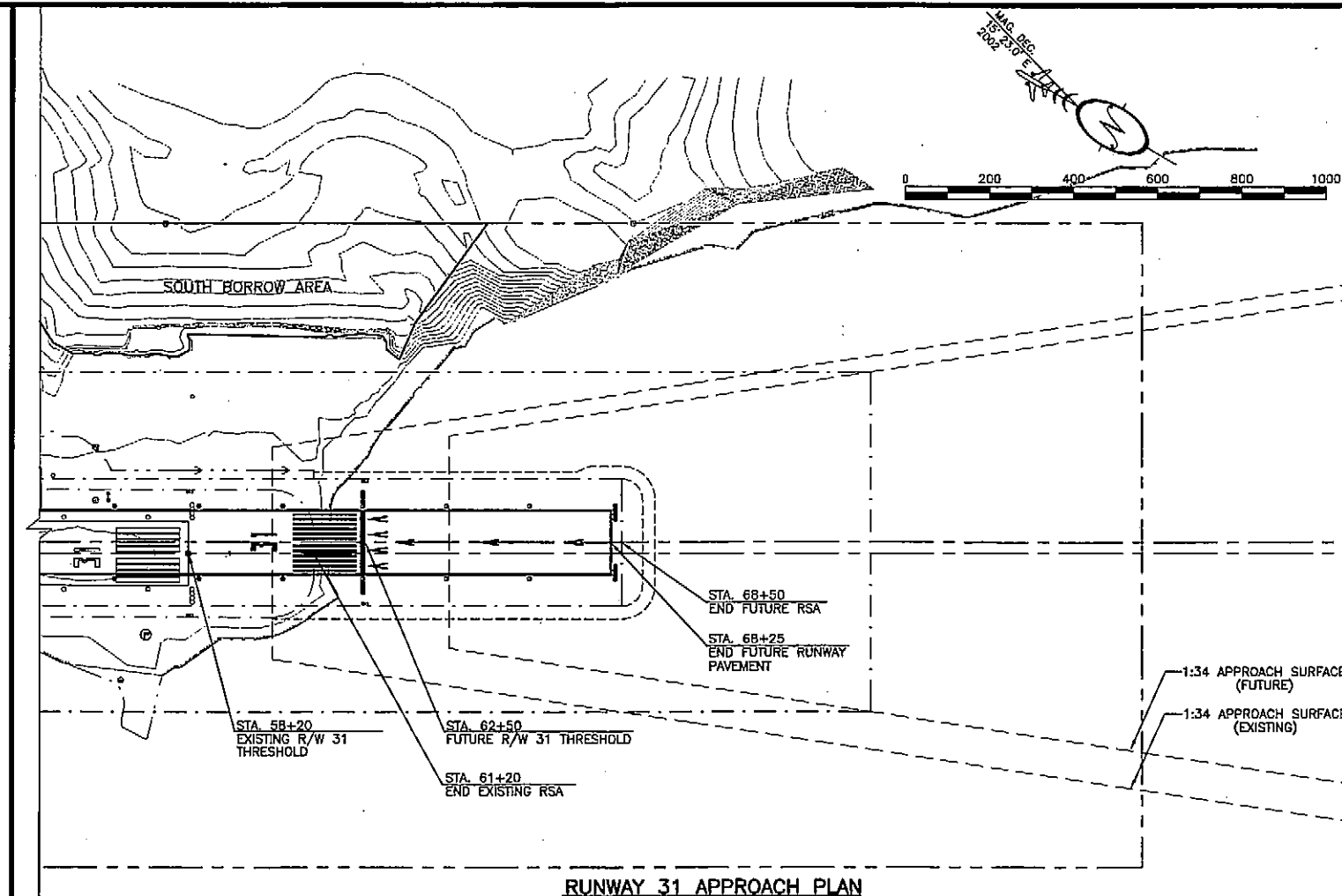
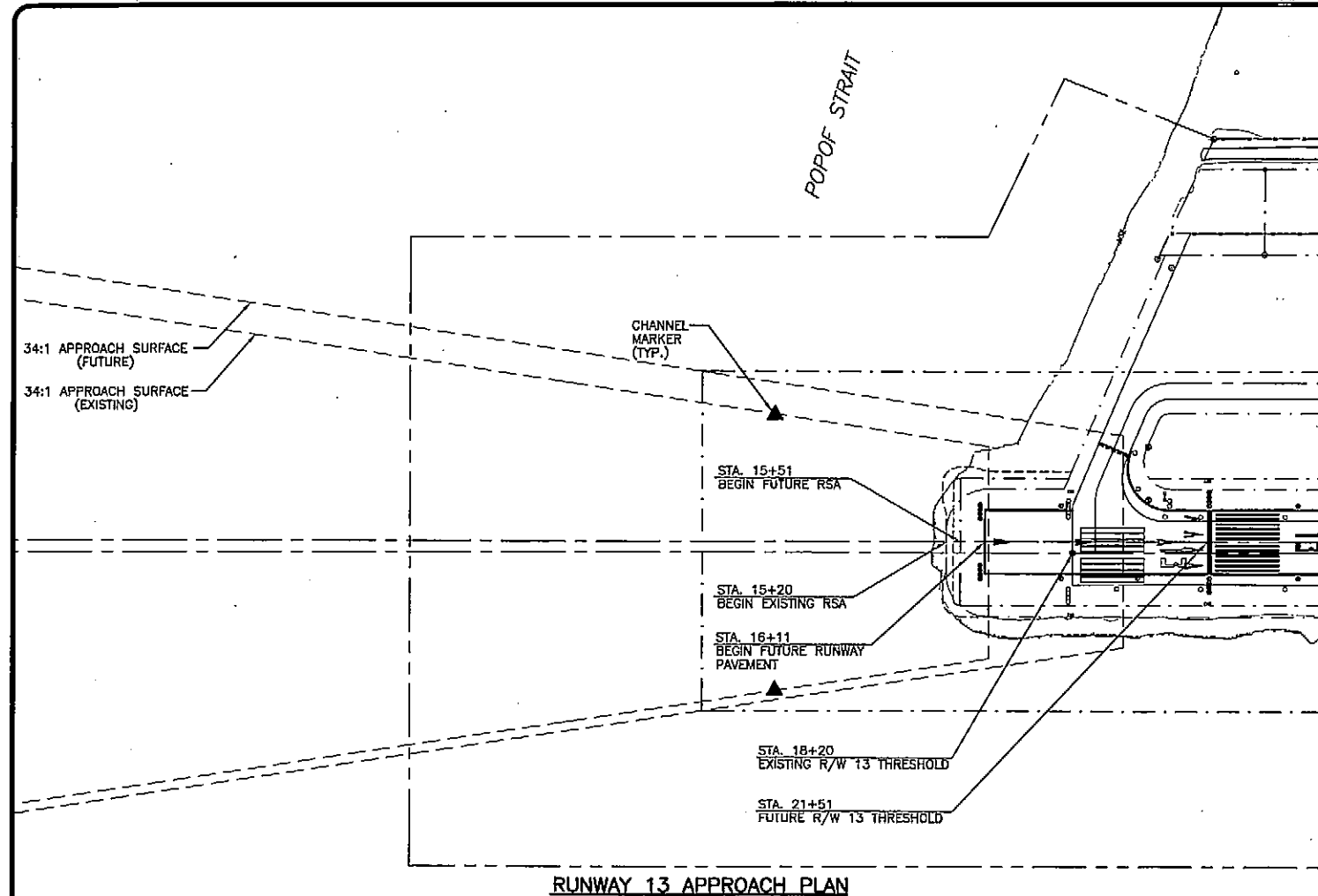
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OF
10



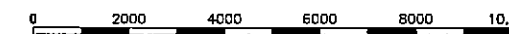
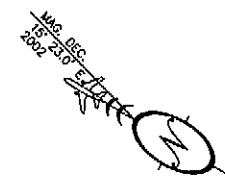
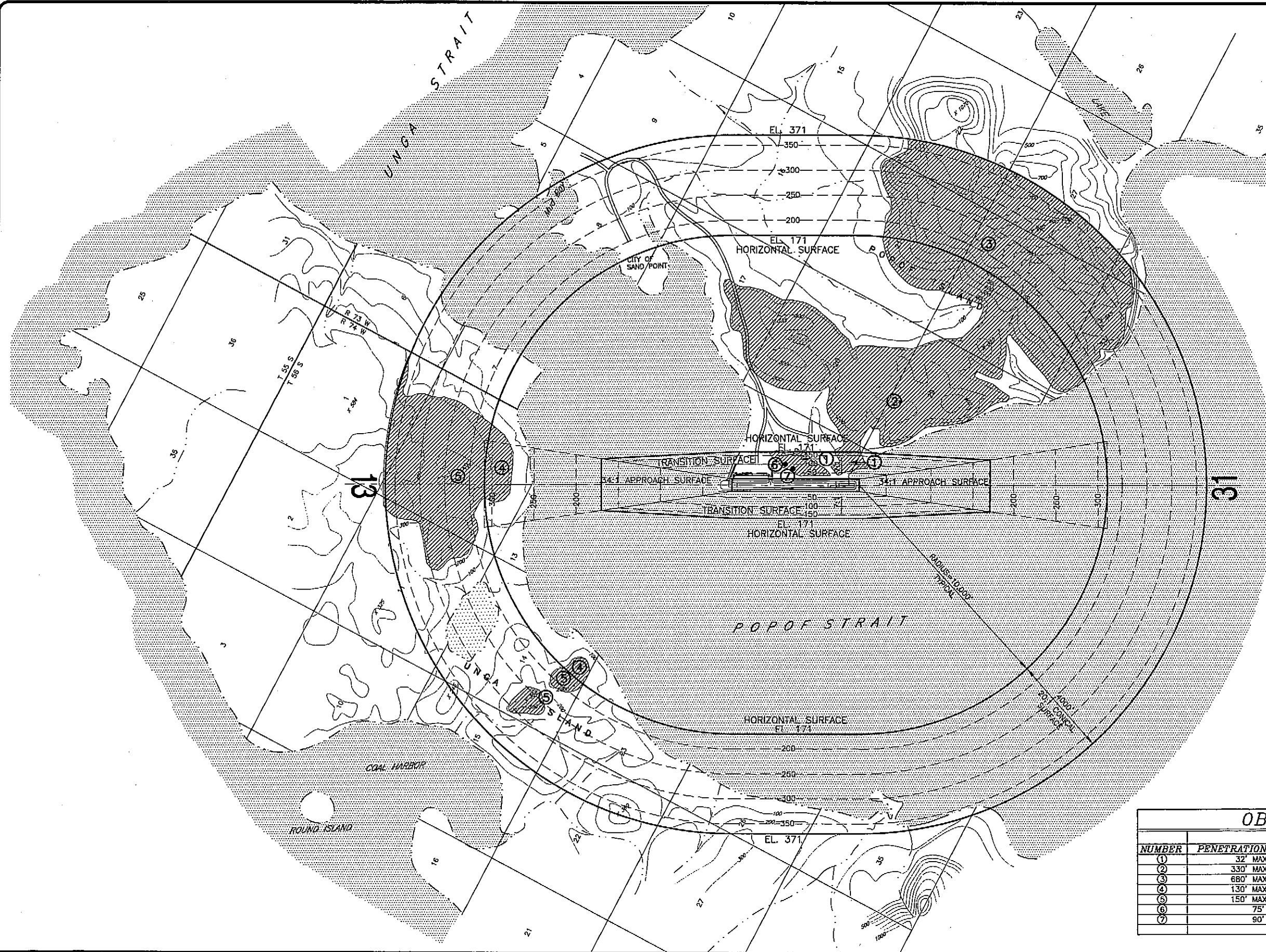
AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL By: <i>[Signature]</i> FAA AIRPORTS DIVISION ALASKAN REGION, AAL-801 DATE: <i>10/2/02</i>		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION APPROVED: <i>[Signature]</i> DESIGN SECTION CHIEF APPROVED: <i>[Signature]</i> PROJECT MANAGER JOHN G. WAHL, P.E.		DATE: 09/10/02 DESIGN: JGL DRAWN: SMT CHECKED: ZWS	SAND POINT EXISTING AIRPORT LAYOUT PLAN AIRPORT PLAN AND RUNWAY PROFILE	SHEET 3 OF 10
FILE: 621700\E-ALP\ALP03.dwg FAA AIRSPACE REVIEW NUMBER: 01-AAL-130-NRA	BY: _____ DATE: _____ REVISIONS: _____					






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	BY DATE REVISIONS	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION APPROVED: <u>[Signature]</u> STEPHEN M. RYAN, P.E. DESIGN SECTION CHIEF APPROVED: <u>[Signature]</u> JOHN G. WAHL, P.E. PROJECT MANAGER	DATE <u>09/10/02</u> DESIGN <u>JGL</u> DRAWN <u>SMT</u> CHECKED <u>ZWS</u>	SAND POINT FUTURE AIRPORT LAYOUT PLAN AIRPORT PLAN AND RUNWAY PROFILE	SHEET 4 OF 10



AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL By: <i>[Signature]</i> FAA AIRPORTS DIVISION ALASKAN REGION, AAL-601 DATE: <u>10/7/02</u>		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION APPROVED: <i>[Signature]</i> STEPHEN M. RYAN, P.E. APPROVED: <i>[Signature]</i> JOHN G. WAHL, P.E.		DATE: <u>09/10/02</u> DESIGN: <u>JGL</u> DRAWN: <u>SMT</u> CHECKED: <u>ZWS</u>		SAND POINT AIRPORT LAYOUT PLAN INNER PORTION OF THE APPROACH SURFACE DRAWING PLANS AND PROFILES		SHEET 5 OF 10
FILE: 621700\E-ALP\ALP05.dwg FAA AIRSPACE REVIEW NUMBER: 01-AAL-130-NRA		BY: _____ DATE: _____ REVISIONS: _____		DESIGN SECTION CHIEF PROJECT MANAGER				



LEGEND

-  WATER SURFACE
-  GROUND OBSTRUCTION
-  SINGLE OBSTRUCTION

OBSTRUCTION DATA TABLE

NUMBER	PENETRATION DISTANCE	DESCRIPTION	DISPOSITION
1	32' MAXIMUM	EXISTING TERRAIN PENETRATION (TRANSITION)	REDUCE TO 7:1
2	330' MAXIMUM	EXISTING TERRAIN PENETRATION/HOR. SFC.	TO REMAIN
3	680' MAXIMUM	EXISTING TERRAIN PENETRATION/CON. SFC.	TO REMAIN
4	130' MAXIMUM	EXISTING TERRAIN PENETRATION/HOR. SFC.	TO REMAIN
5	150' MAXIMUM	EXISTING TERRAIN PENETRATION/CON. SFC.	TO REMAIN
6	75'	75'± TALL NDB ANTENNA	TO REMAIN
7	90'	75'± TALL NDB ANTENNA	TO REMAIN

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL

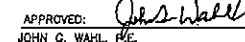
By: 
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-801

DATE: 10/2/02

FAA AIRSPACE REVIEW NUMBER: 01-AAL-130-NRA

BY DATE REVISIONS

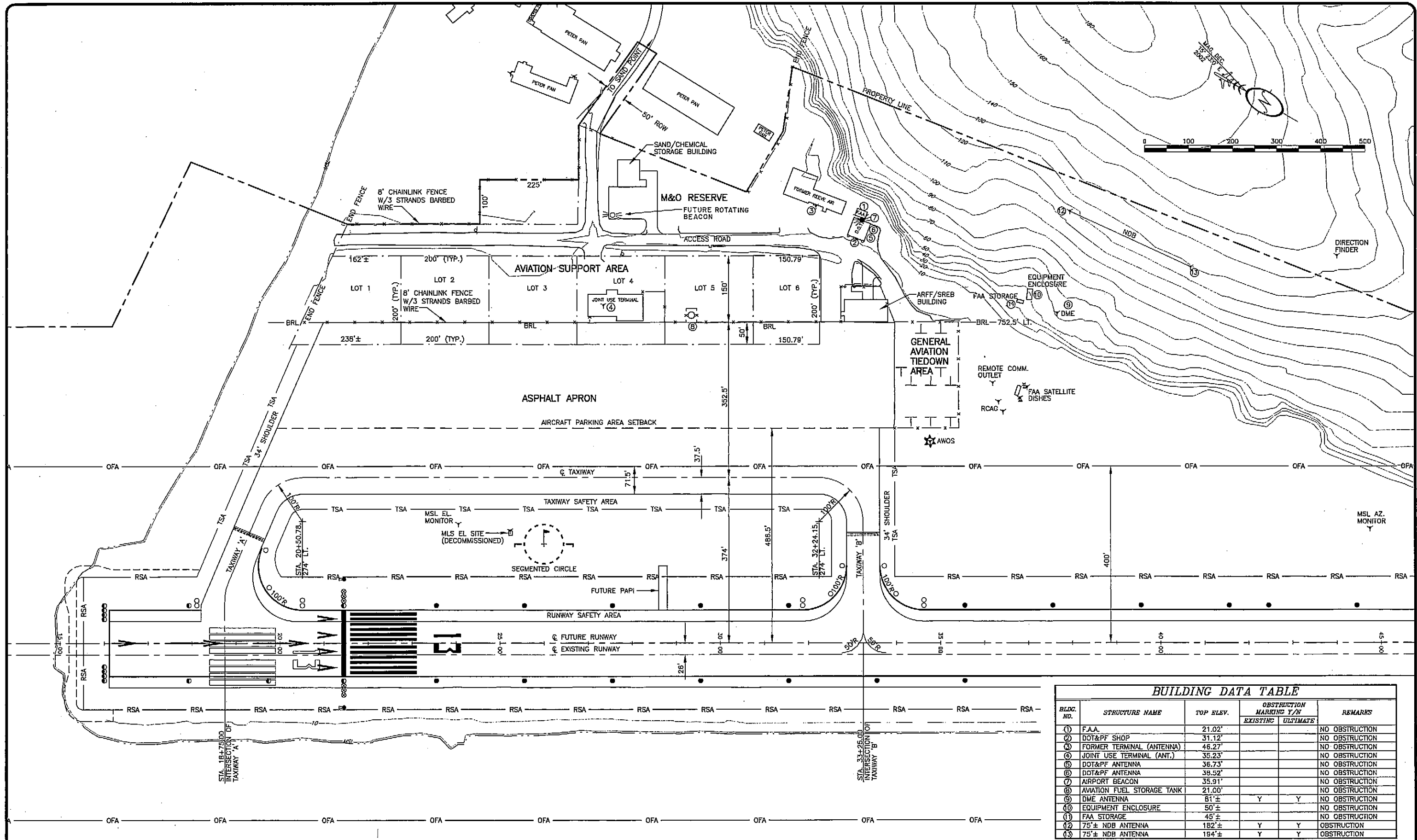
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION

APPROVED:  DESIGN SECTION CHIEF
STEPHEN M. RYAN, P.E.
APPROVED:  PROJECT MANAGER
JOHN C. WAHL, P.E.

DATE 09/10/02
DESIGN JGL
DRAWN SMT
CHECKED ZWS

SAND POINT AIRPORT LAYOUT PLAN AIRPORT AIRSPACE DRAWING

SHEET
6
OF
10



BUILDING DATA TABLE					
BLDG. NO.	STRUCTURE NAME	TOP ELEV.	OBSTRUCTION MARKING Y/N		REMARKS
			EXISTING	ULTIMATE	
(1)	F.A.A.	21.02'			NO OBSTRUCTION
(2)	DOT&PF SHOP	31.12'			NO OBSTRUCTION
(3)	FORMER TERMINAL (ANTENNA)	46.27'			NO OBSTRUCTION
(4)	JOINT USE TERMINAL (ANT.)	35.23'			NO OBSTRUCTION
(5)	DOT&PF ANTENNA	36.73'			NO OBSTRUCTION
(6)	DOT&PF ANTENNA	38.52'			NO OBSTRUCTION
(7)	AIRPORT BEACON	35.91'			NO OBSTRUCTION
(8)	AVIATION FUEL STORAGE TANK	21.00'			NO OBSTRUCTION
(9)	DME ANTENNA	81'±	Y	Y	NO OBSTRUCTION
(10)	EQUIPMENT ENCLOSURE	50'±			NO OBSTRUCTION
(11)	FAA STORAGE	45'±			NO OBSTRUCTION
(12)	75'± NDB ANTENNA	182'±	Y	Y	OBSTRUCTION
(13)	75'± NDB ANTENNA	194'±	Y	Y	OBSTRUCTION

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL By: <i>[Signature]</i> FAA AIRPORTS DIVISION ALASKAN REGION, AAL-001 DATE: <i>10/2/02</i>		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION APPROVED: <i>[Signature]</i> DESIGN SECTION CHIEF APPROVED: <i>[Signature]</i> PROJECT MANAGER JOHN G. WAHL, P.E.		DATE 09/10/02 DESIGN JGL DRAWN SMT CHECKED ZWS	SAND POINT AIRPORT LAYOUT PLAN TERMINAL AREA PLAN	SHEET 7 OF 10
FAA AIRSPACE REVIEW NUMBER: 01-AAL-130-NRA		BY DATE REVISIONS				

A. Purpose

This narrative report is included with the Airport Layout Plan (ALP) for Sand Point, Alaska, in accordance with Federal Aviation Administration (FAA) airport design Advisory Circular (AC) 150/5300-13, change 6, appendix 7. The rationale for improvements at Sand Point Airport is outlined in this narrative report.

B. Introduction

Sand Point is a first class city located on Popof Island, one of the Shumagin Islands, located south of the Alaska peninsula. Access to Sand Point is by air (historically from Cold Bay or Anchorage) and water only. It is located 140 km (87 statute miles) east of Cold Bay, and 917 km (570 statute mi) southwest of Anchorage. The community is located in the Aleutians East Borough, and has approximately 952 (2000 Census) year-round residents and a summertime population that can exceed 1,200, as reported by the Alaska Department of Community and Economic Development, due to the influx of seasonal fishery workers.

Sand Point was established in 1887 as a trading and cod fishing supply post, and fishing remains the basis of the community's economy. Local fishers and processors exploit salmon, halibut, and various types of bottom fish and shell fish. The regional fisheries have expanded significantly over the past 20 years, and the community has grown in response to the increased economic activity. The 1990 Census counted a population of 538, growing to 878 by 1990, for an average annual growth rate during the past twenty years of approximately 3%. More recent years have witnessed slower growth as the fisheries matured, and their resources have become more fully exploited.

C. Airport Usage

1. Current Usage: The FAA National Plan of Integrated Airport Systems (NPIAS) lists Sand Point as a commercial service, non-primary airport. The Alaska Aviation System Plan (AASP) classifies Sand Point Airport as a transport airport. Transport airports serve special transportation needs in Alaska in support of regional and statewide economic development activities, and other unusual circumstances of regional or statewide significance. Twelve airports in Alaska are classified as transport, including such airports as Iliamna, Valdez, Yakutat, and others.

Major trends that may affect future activity levels at the Sand Point Airport include changes in competition in aviation services in Alaska, fluctuations in the fishing industry within the state, and changes in aircraft equipment serving both the passenger and air cargo industry in southwest Alaska and the Aleutians chain. Reeve Aleutians Airways (RAA) has traditionally served Sand Point since 1945. Until 1957, service was provided by floatplane. However, during the 1960s, 1970s, and 1980s, RAA used wheeled aircraft exclusively, such as the YS11. The aircraft was typically configured for both cargo and passenger service. When a runway realignment/extension project was completed in 1993, the air carrier was able to increase the size of the aircraft serving Sand Point. RAA began providing service to Sand Point using Lockheed Electra (L-188) aircraft serving Sand Point from Anchorage three times per week, and augmenting service with non-scheduled flights as demand required. RAA operated the L-188 in a split passenger/cargo configuration in order to maximize flexibility between passenger and cargo demands, while meeting mail shipment requirements provided under the rural Alaska "bypass" mail service contract with the US Postal Service. RAA terminated scheduled service on December 5, 2000.

Between 1993 and 1995, MarkAir also serviced Sand Point using the Beech 1900 aircraft supplemented by Boeing 737-200 aircraft during peak periods.

Peninsula Airways (dba PenAir) has served Sand Point since 1997. PenAir currently operates a Swearingen / Fairchild Metroliner III between Sand Point and Anchorage three times per week, with increased service during the summer season. This aircraft accommodates up to 19 passengers or 1,612 kg (4,320 lbs) of cargo. PenAir also operates the SAAB 340 aircraft occasionally, which has a maximum takeoff weight of 10,824 kg (29,000 lbs) allowing a maximum payload of 3,193 kg (8,555 lbs) in either a passenger or cargo configuration. Depending on the load requirements, the SAAB 340 can be substituted for the Swearingen Metroliner. ERA Aviation also operates in this region. ERA operates the DeHavilland Twin Otter (DHC-6), DHC-8 Dash 8, and Convair 580. ERA does not provide scheduled service to Sand Point, but is licensed to provide charter service. ERA also operates the contract for medical evacuation service in association with Providence Hospital in Anchorage. According to ERA management, ERA has conducted medical evacuations from Sand Point. FS Air Service currently operates medevac flights using fixed wing aircraft such as the Gatos Learjet 35, Metroliner II, or Merlin 3B. Per FS Air Service, the Learjet is not used at Sand Point because the runway is too short.

Northern Air Cargo (NAC) and Lynden Air Cargo (LAC) are two primary cargo carriers in Alaska. NAC operates DC-6 and Boeing 727-100 aircraft in all-cargo configuration, while LAC operates the Lockheed Electra (L-188) and Lockheed Hercules (L-392G). Neither carrier provides scheduled service to Sand Point, but both offer charter services when requested. NAC also operates a dedicated DC-6 bulk fuel tanker airplane that can be used in this and other rural regions of Alaska.

2. Forecasted Usage: Forecasts of enplanements, aircraft operations and fleet mix, and air cargo were developed using historical data and projections of activity as identified from interviews with carriers, several preceding airport planning documents, and published data by FAA.

Tables 1 and 2 on the following page, show Sand Point historical passenger enplanements (1988 to 1999), and passenger enplanement forecasts from 2000 to the year 2020. Passenger enplanement forecasts are based on a straight line projection of the actual growth of enplanements from 1988 to 1996, and expected population growth, employment growth, and increases in the fishing industry, and are consistent with previous planning studies for Sand Point.

Passenger enplanements at Sand Point have been generated from two primary markets: 1) the local population base, and 2) the fishing industry. Enplanements generated from the local population have maintained a consistent growth rate as the community has grown, and tend to be distributed evenly throughout the year. Enplanements generated from the fishing industry are highly seasonal.

Table 1

SAND POINT AIRPORT HISTORICAL PASSENGER ENPLANEMENTS	
YEAR	ENPLANEMENTS
1988	3,458
1989	3,625
1990	3,907
1991	4,289
1992	4,435
1993	4,763
1994	5,099
1995	5,108
1996	5,282
1997	3,894 (FAA)
1998	3,712 (FAA)
1999	3,908 (FAA)

Table 2

SAND POINT AIRPORT PASSENGER ENPLANEMENTS FORECASTS	
YEAR	ENPLANEMENTS
2000 (EST.)	6,300
2005	7,300
2010	8,300
2015	9,300
2020	10,300

Table 3 shows forecasted Sand Point Airport operations based on a straight line projection. Total operations grow from an estimated 3,100 annual operations in year 2000, to about 4,400 operations in the year 2020. The majority of the air carrier operations will be by large aircraft classified as B-II or B-III. Historically, general aviation operations have been light and are expected to remain that way. There are very few helicopter and military operations at the airport.

Table 3

SAND POINT AIRPORT OPERATIONS AND FLEET MIX FORECASTS				
AIRCRAFT TYPE	2000	2005	2010	2020
LARGE AIRCRAFT (B-III OR LARGER)	850	900	950	1,050
MEDIUM AIRCRAFT (B-II)	750	800	850	950
SMALL AIRCRAFT (B-I)	200	225	250	300
TOTAL AIR CARRIER/COMMUTER/ CARGO OPERATIONS				
CARGO OPERATIONS	1,800	1,925	2,050	2,300
GA OPERATIONS	1,200	1,400	1,600	2,000
AL OTHER	100	100	100	100
TOTAL OPERATIONS	3,100	3,425	3,750	4,400

Air cargo consists of both freight and mail. At Sand Point, the majority of freight arrives by mail because of the lack of surface access to the community. Some freight and mail, especially oversized parcels, equipment, household goods, and vehicles, arrive by barge, and by Alaska Marine Highway ferry service. Air cargo arrives on both scheduled and nonscheduled flights with most flights originating and terminating in Anchorage. Tables 4 and 5 show the historical and forecasted air cargo / mail tonnage.

The majority of fish shipments left Sand Point on RAA prior to year 2000, with supplemental service by NAC and LAC. A limited amount of fish is shipped via PenAir, because of the size of the aircraft operated by the carrier.

Fish shipments from Sand Point use lower, "backhaul" rates and must be shipped in larger quantities to generate sufficient revenues for the carriers. In addition, the average shipment of seafood from Sand Point varies between carriers, with all the cargo carriers capable of handling high volumes (15,000 to 20,000 pounds per shipment). RAA had carried smaller quantities because of the passenger configuration of the aircraft, and the fact that the aircraft also served Port Heiden, which utilized some of the cargo space for mail and freight going to Anchorage.

Other activities associated with fish are increasing, including sales of fresh fish to Anchorage and other markets in Alaska. Table 5 depicts the probable inbound and outbound cargo market for the Sand Point Airport, based on an analysis of the historical cargo data and a conservative projection of growth in the community shown in the 1998 Economic Analysis Study. These forecasts are considerably higher than 1995 forecasts shown in the Sand Point Airport Runway Extension Study, because the fishing industry has demonstrated a greater tendency to use airfreight than was previously considered. Cargo projections in the 1998 Economic Analysis Study are based on the assumption that the fishing industry requirement for air shipment will continue increasing over the next 5 to 10 years at an annual rate of about 3%, eventually slowing after the year 2005.

Table 4

SAND POINT AIRPORT HISTORICAL CARGO			
YEAR	INBOUND	OUTBOUND	TOTAL
1988	610,234	325,216	935,450
1990	644,982	333,256	978,238
1995	673,285	350,800	1,024,085

Table 5

SAND POINT AIRPORT CARGO/MAIL PROJECTIONS				
CATEGORY	2000 (EST.)	2005	2010	2020
INBOUND FREIGHT/MAIL	660,000	730,000	790,000	900,000
OUTBOUND FREIGHT/MAIL	430,000	540,000	630,000	770,000
TOTAL FREIGHT/MAIL	1,090,000	1,270,000	1,420,000	1,670,000

D. Design Rationale

1. Critical Aircraft: SAAB 340

Table 6

FAA AC 150/5325-4A, RUNWAY LENGTH REQUIREMENTS FOR SAND POINT (900km STAGE LENGTH)			
AIRCRAFT TYPE	ARC	TAKE-OFF RUNWAY LENGTH (FT)	LANDING RUNWAY LENGTH (FT)
DOUGLAS DC-6	B-III	4,100	4,700
SAAB 340	B-II	4,230	3,400
LOCKHEED ELECTRA L-188	C-III*	4,300	4,900
BOEING 737-200	C-III	4,600	4,300
BOEING 727-100	C-III	5,000	4,900

*Aircraft approach speed for category C is 121 kts or more. Per manufacturers manual, actual approach speed at 90,000 lbs is 118 kts or category B.

2. Airport Reference Code: Sand Point Airport meets Airport Reference Code (ARC) B-III design standards and supports non-precision instrument approaches. This configuration will accommodate both the existing and future aircraft fleet (including occasional operations by Boeing 737 or 727 aircraft which are in the C-III category). Table 7 summarizes ARC B-III design standards.

3. Airport Design Standards: Table 7 shows Airport Design Standards compared to the existing conditions at Sand Point Airport. In all cases, except runway safety area (RSA) length, standards are met.

Table 7

SAND POINT AIRPORT DESIGN STANDARDS (B-III)			
	EXISTING	STANDARD	FUTURE
RUNWAY LENGTH	1219m (4,000')	(TABLE 6)	1589m (5,214')
RUNWAY WIDTH	46m (150')	30m (100')	46m (150')
RUNWAY SAFETY AREA WIDTH	90m (300')	90m (300')	90m (300')
RUNWAY SAFETY AREA LENGTH BEYOND R/W ENDS	90m (300')	180m (600')	180m (600')
RUNWAY OBJECT FREE AREA WIDTH*	240m (800')	240m (800')	240m (800')
TAXIWAY WIDTH	23m (75')	15m (50')	23m (75')
TAXIWAY SAFETY AREA WIDTH	43.5m (143')	36m (118')	43.5m (143')
TAXIWAY OBJECT FREE AREA WIDTH*	57m (186')	57m (186')	57m (186')
RUNWAY CENTERLINE TO TAXIWAY CENTERLINE	120m (400')	90m (300')	114m (376')
AIRCRAFT PARKING AREA SETBACK	156m (512.5')	120m (400')	148m (486.5')
RUNWAY PROTECTION ZONE LENGTH (TYP.)	300m (1,000')	300m (1,000')	300m (1,000')
RUNWAY PROTECTION ZONE INNER WIDTH (TYP.)	150m (500')	150m (500')	150m (500')
RUNWAY PROTECTION ZONE OUTER WIDTH (TYP.)	210m (700')	210m (700')	210m (700')
APPROACH SLOPE ANGLE:			
RUNWAY 31	34:1	34:1	34:1
RUNWAY 13	34:1	34:1	34:1

*Excludes objects used for air navigation or aircraft ground maneuvering.

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL

By: 
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-601

DATE: 10/2/02

FAA AIRSPACE REVIEW NUMBER: 01-AAL-130-NRA

BY DATE

REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION

APPROVED: 
STEPHEN M. RYAN, P.E.

APPROVED: 
JOHN G. WAHL, P.E.

DESIGN SECTION CHIEF

PROJECT MANAGER

DATE 09/10/02

DESIGN JGL

DRAWN SMT

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4. **Runway/Runway Safety Area:** The existing Sand Point Airport runway is 46-m (150-ft) wide and 1219-m (4,000-ft) long. The RSA is 90-m (300-ft) wide by 1402-m (4,600-ft) long providing 90-m (300-ft) safety lengths at each runway end. This runway length is not sufficient to accommodate the existing and future aircraft fleet. In addition, RSA lengths 90-m (300-ft) existing versus 180-m (600-ft) required at both ends are less than current standards. The ALP prepared in the early 1990s, and several subsequent reports have identified a need for a longer runway to meet current safety standards and to provide the necessary runway length for the aircraft fleet.

The 1995 Sand Point Airport Runway Extension Study determined that a 215-m (700-ft) extension is the practical, economical limit of embankment placement because of deep water. The study recommended that the provisions of declared distance standards as described in AC 150/5300-13, Change 6, Appendix 14, be applied to displace both Runways 13/31 thresholds to allow longer take-off distances and safety margins. A 22.5-m (75-ft) unpaved buffer at the runway ends is the minimum recommended to protect from wind spray, wave splash-over and pavement erosion.

The 1995 report considered four alternatives before settling on the recommended plan. The four alternatives were:

1. Construct a 215-m (700-ft) embankment extension and displace the runway thresholds to meet the standards for the safety area beyond runway ends.
2. Construct a 430-m (1,400-ft) embankment extension and displace the thresholds to meet the standards for the safety area beyond runway ends.
3. Construct a 720-m (2,400-ft) embankment extension.
4. No extension, but displace the thresholds to meet the standards for the safety area beyond runway ends.

The first option, the recommended development alternative, provided a 1,414-m long (4,640-ft) runway for departures and a 1,250-m long (4,100-ft) runway for arrivals with 183-m (600-ft) RSAs at each runway end. This alternative was estimated to cost \$4.9 million in 1995.

The second option provided a 1,623-m long (5,325-ft) runway for departures and a 1,463-m long (4,800-ft) runway for arrivals with RSAs of 183-m (600-ft) in length at each end of the runway. In 1995, this alternative was estimated to cost \$14.5 million.

The third option provided a full 1,768-m (5,800-ft) of runway for arrivals and departures, as well as providing the required 183-m long (600-ft) RSAs at each end of the runway. This alternative was estimated in 1995 to cost \$34.1 million.

The final alternative provided a 1,288-m long (4,225-ft) runway for departures and a 1,219-m long (4,000-ft) runway for arrivals. The RSA extensions would remain at 90-m (300-ft) in length, which is less than the standard. Adding RSA extensions within the same embankment would shorten the runway length. The cost for this alternative was estimated to be less than \$1.0 million.

Erosion of portions of the RSA surface that overlie the shore protection constantly results in the RSA not meeting surface smoothness standards. Of the several alternatives considered for correcting this condition, the most economical is to laterally shift the runway inland (to the east) approximately 8-m (26-ft) to move the RSA out of the area that experiences constant erosion. The need to laterally shift the runway applies to all of the previously discussed options.

Alternative number one was recommended and is the basis for ongoing design.

- It provides the required RSA extensions to meet standards for ARC B-III.
- Using the declared distances for the airport (AC 150/5300-13, Change 6, Appendix 14), it provides the maximum practical Landing Distance Available (LDA) for Runways 13/31 on the embankment length.
- It provides the maximum practical Accelerate Stop Distance Available (ASDA), Take Off Run Available (TORA) and Take Off Distance Available (TODA) on the embankment length.
- It avoids placing expensive marine fills north of the runway in the deep channel of Popof Strait (70 m offshore, the water reaches a depth of 30 m). Popof Strait channel is the primary route for the fishing fleet using Sand Point.
- New embankments are placed on the south end of the runway, only into much shallower water, and where there is no conflict with boat traffic.
- Extension of the embankment beyond the recommended is estimated to cost about \$45,000 per meter.

5. **Taxiways:** The taxiway system consists of a partial parallel taxiway located 122-m (400-ft) from the runway center line and part of the apron. Two access taxiways provide connection from the apron to the runway. Because of the low level of air operations, a full length parallel taxiway is not required.

6. **Aprons:** The current combination air carrier/commuter/cargo apron measures approximately 1,250-ft by 250-ft (7.17 acres) and is directly accessible from the adjacent aviation support area. This apron is expected to be adequate for the future. A general aviation aircraft parking area measuring 46 x 76 m (150 ft by 250 ft) is located adjacent to the apron, and can accommodate up to eleven general aviation aircraft. It is expected to be adequate for the planning future.

7. **Access Road:** An improved paved road provides access from the city of Sand Point to the airport. The road is paved to the airport boundary. On-airport service roads provide access to the aviation support area, the general aviation parking area, and the state Department of Transportation and Public Facilities (DOT&PF) maintenance facilities. The airport service roads are improved with adequate drainage and aggregate surfacing, but should be paved when the runway extension project is completed.

8. **Airport Security Fencing:** There is existing airport security fencing with pedestrian and vehicle access gates as needed, located along the most accessible easterly boundary of the airport. The airport is generally surrounded by water along the north, west, and south boundaries and by high precipitous terrain to the east where security fencing is not anticipated.

9. **Airport Support Facilities:** A new Airport Rescue and Fire Fighting (ARFF)/Snow Removal Equipment Building (SREB) was constructed in 2002 between the commercial apron and the general aviation parking area. A new sand and chemical storage building was also constructed in 2002 adjacent to the airport access road.

10. **Airport Terminal:** RAA maintained an airport terminal, adjacent to the apron. Although RAA presently does not provide service to the airport, it is expected that the replacement carrier will use the facility. Pen Air also has a passenger holding facility and fueling station with an above ground fuel storage tank, located adjacent to the apron.

11. **Airport and Terminal Navigational Aids:** The runway has medium intensity runway lights (MIRL), visual approach slope indicators (VASI), and runway end identifier lights (REIL) on both Runways 13/31. Existing non-precision instrument approach facilities include non-directional beacon (NDB)/distance measuring equipment (DME), and global positioning system (GPS) approaches. The microwave landing system (MLS) was recently deactivated and is no longer in service.

12. **Approaches:** Approach surfaces to both Runways 13/31 are 34:1 and are primarily over water. Natural terrain on Unga Island penetrates the distant end of the approach to Runway 13 by an estimated 33-m (100-ft).

13. **Part 77:** To the east of the airport on Popof Island, the natural terrain penetrates the transitional, horizontal, and conical surfaces under FAR Part 77 requirements. The area of penetration is extensive, and the maximum estimated conical penetration is 188-m (610-ft). To the west and north of the airport on Unga Island, the natural terrain penetrates the horizontal and conical surfaces.

14. **Airport Property Status:** The existing airport property comprises 141.46-ha (349 acres), consisting of approximately 37.24-ha (92 acres) of uplands owned in fee simple, and approximately 104.22-ha (257 acres) of tideland lease.

15. **Landfill:** Sand Point has a new permitted landfill. The new landfill is sited well beyond the required 3,000-m (10,000-ft) separation (AC 5200-33). However, it was permitted for ash from an incinerator, which Sand Point has not yet purchased or installed. Therefore, the present landfill is still in operation. The new landfill probably will not be operable for at least a year. Therefore, closure of the existing landfill is probably a minimum of two years away. The existing landfill located along the airport access road is about 1,500-m (4,921-ft) from the airport boundary, closer than the required separation.

16. Modifications to Standards:

1. The runway will be maintained at the existing 45-m (150-ft) width (standard is 30-m (100-ft)) to compensate for prevalent cross winds, and wet runway conditions (typical for this region of Alaska).
2. The 4:1 slope in the transition surface east of the runway will not be changed. A 7:1 slope (standard) requires extensive rock excavation beyond the airport property boundary (estimated 934,000 cubic meters).
3. There is insufficient room on the existing embankment to construct the vertical curve at station 18+20 to the 480-ft length required by the standards. Reconstruction of the embankment would require extensive alteration of shore protection, the placement of fill within a deep water channel, and alteration of pavement. Since this vertical curve is beyond the threshold of runway 13 and will only be used by departing aircraft traveling at slow speed, a vertical curve of 200-ft will be constructed.

E. Airport Development Plan Summary

Two projects will complete the Sand Point Airport Development Plan.

1. Phase I, Runway Rehabilitation and Extension Project:

Under the first project, the RSA embankment and shore protection would be extended 213-m (700-ft) to the south into water up to approximately 15-m (50-ft) deep. The estimated cost for the project is \$6.3 million.

2. Phase II, Runway Rehabilitation and Extension Project:

The second project includes relocating the runway 8-m (26-ft) to the east, paving the runway extension, paving the airport access roads, rehabilitating the existing runway pavement, pavement marking, pavement grooving, runway lighting replacement, and relocation of the REILs and replacing the VASIs with PAPIs in conformance with the new thresholds. The estimated project cost is \$6.8 million.

AIRPORT LAYOUT PLAN CONDITIONAL APPROVAL

By: 
FAA AIRPORTS DIVISION
ALASKAN REGION, AAL-801

DATE: 10/3/02

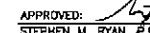
FAA AIRSPACE REVIEW NUMBER: 01-AAL-130-NRA

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STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES CENTRAL REGION

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